

MORE ABOUT THE SOIL SURVEY IN NORTH CAROLINA.

What Has Been Discovered About the Farming Lands of Alamance, Wake, Craven and Iredell and Adjoining Counties—Different Types of Soils and Their Uses—Better Farming Needed.

The report of Hon. Milton Whitney, Chief of the Bureau of Soils, United States Department of Agriculture, gives much valuable information regarding the North Carolina soil survey not contained in our article on this subject in last week's Progressive Farmer. From this report—a long, illustrated volume of 647 pages—we have culled the following extracts that we think will be of interest to all North Carolina readers:

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THE STATESVILLE AREA

The Statesville area comprises 784 square miles, or about 501,750 acres, including the greater part of Iredell County and portions of Rowan, Davie, Catawba, Lincoln, and Mecklenburg counties, N. C. The area lies within the Piedmont Plateau and is eroded by the streams into deep valleys and broad, flat-topped uplands. The average elevation of the uplands is about 1,000 feet, and of the streams and valleys about 750 feet above sea level. The northeastern part of the area touches the foothills of the Brushy Mountains. It is estimated that about 40 per cent of the land is farmed by tenants on the share system. The tenants are mainly white. The labor problem is a difficult one to solve and the scarcity of efficient labor has greatly retarded agricultural development. Cotton, corn, and wheat are the chief crops. Bright tobacco was formerly grown to a considerable extent on the Durham sandy loam, but the industry has been almost entirely given up on account of the better quality of leaf produced on the soils of the eastern part of the State. A number of cotton mills have been erected, and this manufacturing industry has had a serious effect upon the quality and supply of agricultural labor. The farms are owned in rather small holdings—from 100 to 200 acres. The average good upland soil sells for \$10 or \$20 an acre. There are some tracts of bottom land that are worth upward of \$100 an acre. In the more hilly regions, where the soils are poorer, land brings from \$3 to \$5 an acre.

TYPES OF SOIL

The Cecil clay, covering 289,590 acres, or about 57½ per cent of the area, has a stiff, tenacious clay subsoil, but nevertheless possesses good drainage. It is the characteristic "red land" of the South Atlantic States. There is considerable gravel and stone in the soil and subsoil, and there are some stony areas of irregular distribution. The soil is generally thin, but can be deepened by proper methods of cultivation and by green manuring. When so deepened it assumes the properties of a heavy clay loam and is very productive. It requires, however, considerable care and labor to maintain its fertility,

and for that reason, as is common throughout the Southern States, it is not so highly prized, nor is it so successfully worked as the lighter types of soil. Corn yields very well—upward of 50 bushels per acre; cotton from one-third to 1 bale per acre, according to the care given to the preparation of the land and the cultivation of the crop. Wheat produces from 5 to 20 bushels, or even more under the most favorable conditions; the average yield perhaps does not exceed 12 bushels. When in a fair state of cultivation the soil produces good crops of grass and clover.

The Cecil sandy loam, covering 148,910 acres, or about 29½ per cent of the area, has the same clay subsoil as the Cecil clay, but has a sandy loam soil to a depth of from 6 to 10 inches. It has excellent drainage, is easily cultivated, and is highly esteemed by cotton growers, the average yield of cotton being about one-half bale per acre, although more can be produced by thorough cultivation. Formerly some bright tobacco was grown on this soil, but little or none is produced at the present time. It is a good corn soil, and might be adapted to truck and certain kinds of fruit. The soil is better treated than any other in the area, but still is not producing what it should.

Iredell clay loam, covering 22,340 acres, or about 4 per cent of the area, is locally known as "black-jack" or "beeswax" land. It has an impervious, waxy clay subsoil, and crops suffer alike from heavy rains and prolonged drought. It is cold and late and produces hardly more than half as much as the soils above named. It quickly deteriorates and is then difficult to improve. It is considered the poorest soil of the area.

Meadow, covering 18,850 acres, or nearly 4 per cent of the area, occurs along the stream courses. It is considered the most valuable land in this region, and is adapted particularly to corn and grass. Wheat makes too rank a growth of straw and is not usually cultivated. The meadow would have far more value were it not for the danger of overflow, which not only destroys the growing crop, but often damages the soil by the deposition of sand. Little or no attempt is made to protect these lands by diking, although in some instances this undoubtedly could be economically done. The other soil types of the area occur only to a small extent and have little agricultural value.

SOILS NOT SO PRODUCTIVE AS THEY SHOULD BE—FARMERS CONTENT WITH HALF CROPS

As a rule the soils of the Statesville area are not producing what they should. It is probably safe to say that the yield of crops is only half as great as would be secured with the more thorough methods used in some other localities over which the soil survey has been extended. The plows used are light affairs and the cultivation is exceedingly superficial. The fields wash

badly, and when so washed, or when the yields fall off, the land is abandoned and new fields are cleared. With the present low value of land and the low price obtained for products this may seem the best course to pursue, but in the long run it is expensive, as the lands suffer seriously and the returns under the methods at present used are small and unprofitable. The country, both from its soils and physical aspect, should be adapted to stock raising, and this would tend more than anything else to increase the fertility and permit the adoption of better cultural methods. The argument is frequently advanced that the rather unfavorable conditions of agriculture in these Southern areas are due to the climate. One has but to observe, however, the success that has been attained by a few farmers who have used careful and thorough methods to see that the trouble can hardly be attributed to this. It can safely be said that with careful methods the soils are as productive as the corresponding types in more northern localities.

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SOIL SURVEY IN ALAMANCE COUNTY

Alamance County comprises 233,820 acres, or about 365 square miles. It has the rolling and hilly character of the Piedmont Plateau, through which the streams flow in steep-sided valleys. The average elevation of the upland portion is about 650 feet. There are three small mountains, so-called, within the area. This is one of the chief manufacturing counties in the State. The principal crops are wheat, corn, tobacco, oats, and some cotton, clover, and grass. Tobacco was formerly a much more important crop than at present. Bright-yellow tobacco was grown extensively at one time, especially on the Durham sandy loam, and in consequence of the growth of this industry the lands rose from \$2 or \$3 an acre to \$20, or even \$100 where the finest quality of leaf was produced. At present the industry is hardly one-third as great as it was at its maximum, owing to the shifting of the industry to the light sandy soils of the eastern part of the State. The average price of land in the county is perhaps \$10 per acre—sometimes considerably more and sometimes much less.

ALAMANCE SOILS

Cecil clay, covering 101,370 acres, or about 43 per cent of the area, is one of the most productive soils. It is adapted to wheat, corn, oats, and clover, and is used to some extent for cotton. The average yield of wheat is about 12 bushels per acre, but with thorough cultivation this can be very materially increased. It is decidedly the strongest soil in the area, but is rather difficult to till and is not as well appreciated as it deserves on this account.

Durham sandy loam, covering 84,900 acres, or about 36 per cent of the county, forms a part of what was once known as the "golden tobacco belt" of the State. It produces a fine grade of the bright-yellow cigarette and smoking tobacco, and is still

used to some extent for this crop. Where tobacco has been given up the land has been devoted mainly to wheat, oats, and corn, particularly in the southern part of the county, but the yields are light and the soil is not well adapted to general farming purposes. It contains but little organic matter, leaches easily, and the fertility is difficult to maintain. It would be adapted to many kinds of truck crops, but the climate conditions and market facilities are not especially favorable for this industry.

Iredell clay loam, covering 18,760 acres, or 8 per cent of the county, is the poorest soil found in the area. The subsoil is very impervious, and the crops suffer in both wet and dry seasons. When first cultivated it produces fairly well under favorable conditions, but it soon wears out and is abandoned as waste land.

Herndon stony loam, covering 4,960 acres, or about 2 per cent of the area, is rough and hilly, and only small patches are capable of easy cultivation to grain crops. A fair quality of fruit, especially peaches, may be grown. At present the area is mostly forested.

The Alamance silt loam, covering 7,860 acres, or a little over 3 per cent of the county, has a rolling, hilly surface, and while not naturally a strong soil, may be made to yield fair crops, with the exception of tobacco. At the present time it is largely in forest.

Meadow, covering 15,970 acres, or nearly 7 per cent of the area, occurs along the streams, especially the smaller ones. It is particularly well adapted to corn and grass, but is subject to overflow in time of freshets and the crops are therefore more or less uncertain.

Farm labor is scarce within the area surveyed, and the farm implements are not well adapted to the heavy clay lands. Commercial fertilizers are depended upon where better methods of cultivation would give even larger returns. The farmers seem to be realizing that more intensive methods will improve conditions, and that they should practice the adaptation of crops to their several kinds of soils.

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THE CARY AREA

A small area of about 63 square miles, or 40,320 acres, within the Piedmont Plateau, was surveyed between Raleigh and Cary at the request of the North Carolina Department of Agriculture. The principal crops are cotton, corn, wheat, sweet potatoes, and peanuts, with some market-garden products near Raleigh. The Cecil sandy loam, covering 26,090 acres or about 65 per cent of the area, the Cecil clay, covering 2,960 acres or 7 per cent, the Durham sandy loam of 8,090 acres or 20 per cent, and Meadow covering 3,180 acres or about 8 per cent of the area, were the only soils recognized, and these have already been described in connection with the Statesville and Alamance County areas in the same State.